

Using Constructivism Learning Environment Management System to Flipped Classroom and Enhance an EFL'S English Reading Comprehension

Napalai TIJAI & Issara KANJUG *

Department of educational technology Faculty of education, Khon Kaen University Khonkean, Thailand

**issaraka@kku.ac.th*

Abstract: Technology enhanced language learning to support flipped classroom. This research used constructivist learning environment (CLE) to be base for designing and developing learning environment as well as Learning Management System (LMS). Constructive learning emerges in online learning environment called SOCIALClassnet. The aim of the study was to design and develop flipped classroom learning environment to enhance English reading comprehension for Grade 8 Students. The target group comprised of 15 students at Bannongtana Publicschool in Thailand. Data collection performed in the first semester in English in academic year 2018. Developmental research included 1) Design and development and 2) Experimental research. Research methodology was to synthesize designing framework, learning environment design and pilot study. Descriptive statistic was used in this study. The result of pilot study found that the synthesis of the designing framework based on theoretical framework which then put into practicing comprised of 7 components: (1) Problem base, (2) Information resource, (3) Cognitive tools, (4) Related Case, (5) Scaffolding, (6) Coaching, and 7) Social/context support, and reviewed the effectiveness by experts in the evaluation process 1) productivity assessment, 2) contextual utilization assessment, 3) learner's opinions assessment on 3 aspects; content, media and designing, , 4) assessment of learner's English reading comprehension 5) assessment of learner's achievement was \bar{x} of about 14.00, S.D. of about 1.69 that every learners passed 70 % of the subject standard

Keywords: Constructivism learning environment, flipped classroom, reading comprehension

1. Introduction

Instruction in English is a priority around the globe, but instructional methodologies have not always kept pace with the changing needs of students and English is still often taught as a conventional classroom subject. Innovative educators seek instructional methodologies that improve learning as well as motivating students to excel (Johnson, Adams Becker, Estrada, & Freeman, 2014).

Reading comprehension is important because it is one of the most frequently used language skills in everyday life, as witnessed by the use of Internet. Students search for information through the web and most of it is published in English (McDonough & Shaw, 1993, p. 89). In Thailand where English is taught as a foreign language (EFL) and is a required subject from the first grade, students spend a tremendous amount of time learning English, but in the past year 2017 result of Ordinary National Education Test (O-NET) English is the lowest at \bar{x} =36.34 than all subjects.

The flipped classroom is a blended learning strategy with the aim to improve student engagement and outcomes. It is a pedagogical method, which employs asynchronous video lectures and practice problems as homework, and active, group-based problem solving activities in the classroom. It's as an educational technique that consists of two parts: interactive group learning activities inside the classroom, and direct computer-based individual instruction outside the classroom. Furthermore, the flipped classroom, an approach that utilizes CALL (computer assisted language learning) to snapshot the essence of lectures and uploads the videos online, allowing

students to have flexible access and to choose their own pace of learning, has gained in popularity over the past 5 years (Goodwin and Miller 2013).

This research has been used constructivism learning environment (CLE) is the basis for designing and developing LMS called SCOCIALClassnet, which it's an online learning environment provides an easy tool for creating an online learning environment for flipped classroom (Kanjug, I., Na-ngam, C. & Kanjug, P. ,2017; Kanjug, 2015).

From the important and necessity above, the researcher is interested in designing and developing Constructivism Learning Environment Management System to Flipped Classroom and Enhance an EFL'S English Reading Comprehension for Grade 8 Students.

2. Literature Review

2.1 Constructivism Learning Environment Management System

The constructivism learning environment (CLEs) theory are characterized as hands-on learning environment that strive to imitate real-life contexts, (Jonassem,1999). The CLEs has a social learning: learning is to construct knowledge individually and socially based on learners' interpretations of experiences in the world. Instruction is to engaging learners in meaning making (Kanjug, Chaijaroen, and Samat,C.,2015). The CLE is the basis for designing and developing Learning management system (LMS) called SCOCIALClassnet which key elements of SCOCIALClassnet are problem base & learning task, knowledge bank & related, collaboration & cognitive tools and coaching & social support.

2.2 Flipped Classroom Learning Environment

The flipped classroom is a blended learning strategy with the aim to improve student engagement and outcomes. It is a pedagogical method, which employs asynchronous video lectures and practice problems as homework, and active, group-based problem solving activities in the classroom. It's as an educational technique that consists of two parts: interactive group learning activities inside the classroom, and direct computer-based individual instruction outside the classroom. The term of flipped classroom originally came from teacher Jonathan Bergmann and Aaron Sams in 2007 (Sohrabi and Iraj, 2016). In this study, flipped learning is adapted from Kanjug's model (2015) and will describe in the next section.

2.3 Reading Comprehension


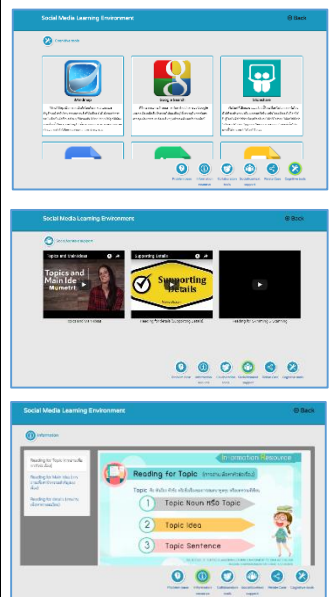

Most definitions of reading comprehension (Davey and Miller, 1990; Pulido and Hambrick, 2008) embody an assumption that reading comprehension is a product of a reader's interaction with a text. It's the ability to process text, understand its meaning, and to integrate it with what the reader already knows. (William Grabe (2009) Fundamental skills required in efficient reading comprehension are knowing meaning of words, understand meaning of a word from discourse context, follow organization of passage and to identify antecedents and references in it, draw inferences from a passage about its contents, identify the main thought of a passage, answer questions answered in a passage, recognize the literary devices or propositional structures used in a passage and determine its tone, to understand the situational mood. Miller (1990) devise level of reading comprehension in 4 levels 1) textually explicit comprehension 2) Textually implicit comprehension 3) Critical reading comprehension and 4) Scripturally implicit comprehension

3. Methodology

3.1 Constructivism Learning Environment Management System to Flipped Classroom

Design

Table 1: *Component of Constructivism Learning Environment Management System to Flipped Classroom Design*

Principles and theories	Design principles	Example of design shot
1) Activating Cognitive Structure and Reading Comprehension	It was illustrated the relationship between theories and the components as follows: cognitive constructivism (Piaget, 1992); cognitive conflict, OLEs(Hannafin,1999), Reading Comprehension (Miller,1990) as follows of 4 abilities: textually explicit comprehension, textually implicit comprehension, critical reading comprehension, and scripturally implicit comprehension. The composition of the problem base and learning task to enhance reading comprehension. It helps activating cognitive structure of the students.	
2) Supporting Cognitive Equilibrium and Reading Comprehension	It was illustrated the relationship between theories and the components as follows: constructivism (Piaget, 1992); OLEs (Hannafin,1999), CLEs Model (Jonassen,1999); Cognitive tools. The designing of the components was called Cognitive tools which to support their mission to solve complex problems. And Relate Case was supporting to encourages students personalize the experience to close the case and to expand the view to change the perception; SOI (Mayer, 1996); selecting, organization, integrating. The designing of the component was called Information Resource which was to support discover the answer to solve the problem by discovered knowledge from various sources and can help students understanding easily; Social Constructivist (Vygotsky, 1978); zone of proximal development The designing of the component was called Collaboration tools which were to support encourage students to share experiences between students, teachers and experts for expanded view of thinking.	
3) Supporting and Enhancement for Reading Comprehension	It was illustrated the relationship between theories and the components as follows: Social Constructivist (Vygotsky, 1978); zone of proximal development, OLEs(Hannafin,1999); conceptual, metacognitive, procedural and strategic scaffolding. The designing of the component was called Scaffolding is a systemic approach to support the learners in different aspects of the learning environment; base on learner's level of understanding and need, adjust tasks difficulty and restructure the task ; Cognitive Apparent ship (Brown et al, 1989), the designing of the component was called Coaching which the constructivist learning influences teacher to become more coach rather than just teach which is to support encourage, imply and give the learners' advice to complete the mission by principles of cognitive apparent ship model.	




3.2 The Design Flipped classroom to Enhance an EFL's English Reading Comprehension

In this part, the researchers would like to present combining flipped classroom by using the constructivism learning environment management system called SCOCIALClassnet to enhance

reading comprehension.

An Example of Flipped Classroom to Enhance an EFL's English Reading Comprehension

Table 2: *An example of learning process in Flipped English reading comprehension Learning classroom adapted from Kanjug, I., Na-ngam, C. & Kanjug, P. (2017)*

Components	Description of learning process	Example of learning activity
Learning material : SOCIALClassnet		
Out of Class Knowledge acquisition - Problem base & Learning Task - Knowledge Bank -Scaffolding	<ul style="list-style-type: none"> the teacher oriented a course then provided an online learning on Constructivism Learning Environment Management System call SOCIALClassnet 	
Learning material : Teaching reading comprehension as an Active Learning		
In class Knowledge Transfer -Enabling Context -Problem base Knowledge Construction - Learning Task - Collaboration - Coaching Knowledge Reflection - Reflection	<ul style="list-style-type: none"> the students came to class with a question which provided in online learning. then, teacher created activities for taught reading comprehension in active learning. the students collaboration learning task and discuss about activities as the teacher was coaching. 	
Out of Class Knowledge sharing - Collaboration - Coaching	<ul style="list-style-type: none"> the teacher provides supports to help the student perform a task. the teacher and Students share knowledge, problems or opinions and comments about activities in class together on social media such as SOCIALClassnet, facebook, blogger, etc. 	

Before class, Teacher oriented a course then provided an online learning on Constructivism Learning Environment Management System call SOCIALClassnet then students learning online out of class. In class, students came to class with a question which provided in online learning. After that, teacher created activities for taught reading comprehension in Active Learning. Students collaboration learning task and discuss about activities as the teacher was coaching. Finally, out of class teacher and students share knowledge, problems or opinions and comments about activities in class together on social media such as SOCIALClassnet, facebook, blogger. Etc

3.3 Pilot Study

3.3.1 Participant

- Experts including 1) Content expert was teacher who was teaching in this subject 2) Learning media expert and 3) Learning environmental design expert.
- The target group of 15 students in grades 8 at Bannongtana Publicschool in Thailand

3.3.2 Research Instrument

The instrument in this study consisted of 1) the instrument for experimental including the constructivism learning environment management system to flipped classroom and enhance English reading comprehension. The process of the design was as follows: (1) to examine the principles and

theories, (2) to synthesize designing framework of constructivism learning environment management system to flipped classroom and enhance English reading comprehension, (3) to design constructivism learning environment management system to flipped classroom based on above mentioned designing framework and (4) to evaluate the efficiency of the constructivism learning environment management system to flipped classroom. 2) the instrument for data collecting including (1) the record from document analysis, (2) evaluation of the productivity from experts, (3) evaluation of context of use (4) evaluation of student's opinions (5) evaluation of student's English reading comprehension and (6) evaluation of student's learning achievement

3.3.3. Data Collection and Data Analysis

1) Synthesis of theoretical framework were data collected by analyzing principles, theories, media and technology theory, pedagogy and contextual study. 2) Synthesis of Designing framework of learning environment by synthesized of theoretical framework was taken in to process. The theories base such as technology and media, contextual, pedagogies and learning theories base. 3) Design and development of the learning environment based on foundation of creating designing framework. Proposed the learning environment to the expert to assess 1) content, 2) media and 3) design then recorded on learning environment quality assessment form expert. The data was analyzed by data interpretation to be used improve the learning environment quality. After that try out with the students who apart of target group in the purpose of studying the contextual utilization. The researcher studied students' cognitive process

as term of 1) the context of use analysis by interviewing and interpreting. 2) Studied student's opinions

towards the learning environment analysis by rating scale and interpreting analysis, 3) Studied Student's

English reading comprehension and 4) student's learning achievement analyzed data by using descriptive statistics as ratio, mean, S.D, and percentage.

4. Result and Discussion

The results shown the effectiveness of the using CLMS to flipped classroom and Enhance an EFL's English Reading Comprehension as the flowing: The result of an expert review on learning content, learning media design and CLMS to flipped classroom design, a way to check the quality of the specialists. 1) The result of an expert review as follow: learning content., media design found that and CLMS to flipped classroom design found that they were appropriate. 2) Evaluation of Context of Use: the appropriate group size was 3 students to collaborative solve a problem. They collaborated to study, do tasks, search information and include do all activities in class. They can complete do the tasks in time and quickly. If members group of 2, they are too small to complete do the tasks in time, and members more group of 3 could lead not to see the screen clearly and not pay attention in the tasks. 3) Evaluation of Student's Opinions: Studied their opinions towards innovation throughout the survey form questionnaire which comprised (1) content: found that content of reading comprehension was appropriated with student's level. It was up to date and not too difficult or too easy and clear for them to study and solve the problems base at (\bar{x} of about 4.56) (2) media: found that the designing of Navigator which helped them to easily search information, Icon showed the meanings of information resources. The Architecture in learning environment was suitable, interesting via Figures, highlighted, alphabets size and colors was very interesting at (\bar{x} of about 4.58). (3) designing: found that all components in the learning environment were appropriated at (\bar{x} of about 4.55). 4) Evaluation of Student's English reading comprehension: evaluated their reading comprehension from English reading comprehension test has 40 items consists of 4 levels of reading comprehension (Miller,1990). The results was found that, after they learned with CLMS to Flipped Classroom, they in levels (1) textually explicit comprehension was at (\bar{x} of about 8.67) (2) Textually implicit comprehension was at (\bar{x} of about 8.00), (3)Critical reading comprehension was at (\bar{x} of about 7.33) and (4) Scripturally implicit comprehension was at (\bar{x} of about 6.67) as shown in the Figure 1. 5) Evaluation of Student's Learning Achievement: The learning achievement of the 15

target group was found that the posttest was \bar{x} of about 14.00, S.D. of about 1.69 more than pretest \bar{x} of about 8.73, S.D. of about 1.75 which 70 % of the students pass 70% of the subject standard.

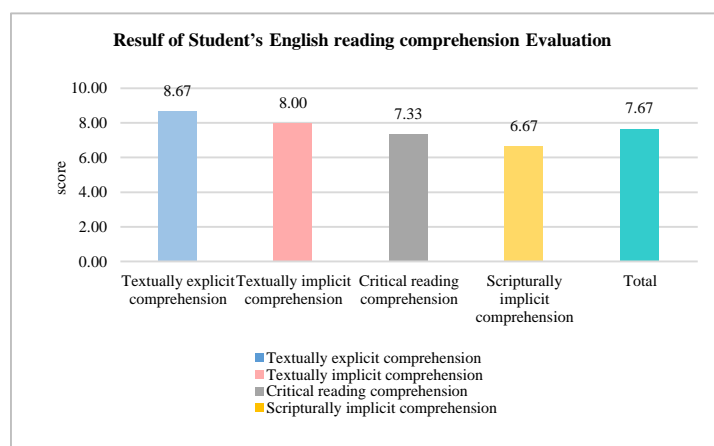


Figure 1. Result of Student's English reading comprehension Evaluation

5. Conclusion and Future Work

This study designed reported using constructivism learning environment management system to flipped classroom and enhance an EFL's English reading comprehension a pilot study. However, to enhance student' English reading comprehension, we are going to study about the effect of flipped classroom learning environment to enhance learner's English reading comprehension.

References

- C.-M. Cheng, "Reflections of college English majors' cultural perceptions on learning English in Taiwan," *English Lang. Teach.*, vol. 6, no. 1, p. 79, 2013
- Davey, B., & Miller, D. (1990). Topicalization and the processing of expository prose by children: Mediating effects of cognitive styles and content familiarity. *Educational Psychology*, 10 (23), 38.
- Day, R., & Bamford, J. (2000). *Extensive reading in the second language classroom*. Cambridge: Cambridge University Press
- Goodwin, B., & Miller, K. (2013). Teaching self-regulation has long-term benefits. *Educational Leadership*, 70(8), 80-81
- Johnson, L., Adams Becker, S., Estrada, V., & Freeman, A.(2014).*NMC horizon report: 2014 K-12 edition*. Austin, TX: The New Media Consortium.
- Jonassen, D. H. (1999). *Designing constructivist learning environments*. In C. M. Reigeluth (Ed.), *Instructional design theories and models: A new paradigm of instructional theory* (pp. 217-239). Mahwah, NJ: Lawrence Erlbaum Associates,
- Kanjug, I. (2015). *Fundamental of Educational Technology*.Khonkean, Klangnanawitaya.
- Kanjug, I, Chaijaroen, S, & Chamat, C. (2015). *The Effect of Knowledge Construction Web-Based Learning Environments on Undergraduates' Learning Outcomes*. In Proceedings of the 23rd International Conference on Computers in Education (ICCE2015), Asia-Pacific Society for Computers in Education, China; 12/2015
- Kanjug, I., Na-ngam, C.& Kanjug, P. (2017).*SOCIALClassnet as an LMS for Online Flipped Learning Environment*. In Proceedings of the 6th IIAI International Congress on Advanced Applied Informatics (AAI 2017), Hamamatsu, Japan on July 9-13, 2017
- McDonough, J., & Shaw, C. (1993). *Materials and methods in ELT*. Oxford: Blackwell.
- McKay, S. L. (2002). *Teaching English as an international language*. London: Oxford University Press
- Sheu, C. M. (2011). Effects of an online GEPT simulated-test English remedial course on test performance, English language learning strategy us and perceptions. *The Asia-Pacific Education Researcher*, 20(1), 171-185.